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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/931,610

08/16/2001

C.C. Wang

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06/02/2003

LADAS & PARRY

Suite 2100

5670 Wilshire Boulevard

Los Angeles, CA 90036-5679

EXAMINER

DOROSHENK, ALEXA A

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 06/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/931,610

Applicant(s)

WANG ET AL.

Examiner

Alexa A. Doroshen *del*

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 12-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-18 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "211" in figure 1A. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: The status of the continuing applications in the first line of the specification should be updated at Application No. 09/861,203 is now US Patent No. 6,471,919 and Application No. 09/191,918 is now abandoned.

Appropriate correction is required.

### ***Claim Objections***

3. Claim 12 is objected to because of the following informalities: in line 5 of the claim, applicant has recited "surface." but further steps are recited in claim 12 beyond this period mark. It is suggested that applicant amend the claim to "surface; and".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwab (5,759,233) in view of Pircon (4,744,958).

With respect to claim 12, Schwab discloses a method for removing impurities from a gas stream comprising the steps of:

spraying a liquid (725) toward a horizontally located surface (impingement plate 795) to form a film of liquid on the surface (col. 12, lines 32-41); and

passing effluent gas (727) past the surface and the liquid (col. 12, lines 24-41).

Schwab discloses an impingement plate which is horizontally located, but is silent as to the plate being solid.

Pircon also teaches a method for removing impurities from a gas stream which include an impingement plate (31) and discloses wherein this plate is horizontal, solid and is operable in the device without appreciable pressure drop (col. 4, lines 15-23). It

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would have been obvious to one of ordinary skill in the art at the time the invention was made to use the solid horizontal impingement plate of Pircon as the impingement plate of Schwab as it is merely the substitution of functionally equivalent structures with a reasonable expectation of success, in addition to the advantage taught by Pircon of no appreciable pressure drop in using such a solid horizontal impingement plate. Schwab discloses the desire to control pressure drop in the system (col. 2, lines 62-64).

With respect to claim 13, Schwab further teaches wherein the spraying step the liquid that is sprayed (725) is sprayed toward the surface such that it extends to the surface and beyond the surface (see fig. 7).

With respect to claim 14, Schwab further teaches wherein in the spraying step the liquid that is sprayed (725) is sprayed toward and against two parallel spaced apart impingement plates (795) (see fig. 7).

With respect to claim 15, Schwab further teaches the step of sucking the effluent gas past the surfaces and the spray (col. 13, lines 3-5).

With respect to claim 16, Schwab further teaches wherein the spraying step further comprises spraying a first spray (725) against one of the parallel surfaces and spraying a second spray (791) against the second of the parallel surfaces (col. 12, lines 24-41).

With respect to claim 17, Schwab further teaches wherein the spray sprayed toward each surface is emitted generally centrally of that surface (see fig. 7).

With respect to claim 18, Schwab discloses a method for removing impurities from a gas stream comprising the steps of:

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spraying a liquid (725) from a first source toward a flat horizontally located first surface to form a film of liquid on that first surface (col. 12, lines 30-41);

spraying a liquid from a second source (791) toward a flat horizontally located second surface to form a film of liquid on that second surface (col. 12, lines 30-41); and

passing effluent gas (727) past the surfaces and the sprayed liquids (col. 12, lines 24-41).

Schwab disclose impingement plates which are horizontally located, but is silent as to the plates being solid.

Pircon also teaches a method for removing impurities from a gas stream which include an impingement plate (31) and discloses wherein this plate is horizontal, solid and is operable in the device without appreciable pressure drop (col. 4, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the solid horizontal impingement plate of Pircon as the impingement plate of Schwab as it is merely the substitution of functionally equivalent structures with a reasonable expectation of success, in addition to the advantage taught by Pircon of no appreciable pressure drop in using such a solid horizontal impingement plate. Schwab discloses the desire to control pressure drop in the system (col. 2, lines 62-64).

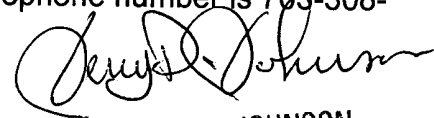
### **Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 703-305-0074. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



JERRY D. JOHNSON  
PRIMARY EXAMINER  
GROUP 1100

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May 29, 2003